

Amendments To The Claims

The listing of claims presented below will replace all prior versions, and listings, of claims in the application.

Listing of claims:

1. **(currently amended)** An RF front-end transceiver comprising:

a frequency synthesizer or a base band processor for providing a digital frequency control voltage (VDT) signal and an analog frequency control voltage (VAT) signal **[[:]]**, **wherein the frequency synthesizer comprises** an oscillator for outputting a resonant frequency signal such that a frequency of the resonant frequency signal is controlled by the VDT signal and the VAT signal;

a receive amplifier for amplifying and outputting a receive RF signal;

a receive mixer for mixing the receive RF signal amplified and the resonant frequency signal to convert the receive RF signal into a receive base band signal;

a transmit mixer for mixing a transmit base band signal and the resonant frequency signal to convert the transmit base band signal into a transmit RF signal; and

a transmit amplifier for amplifying and outputting the transmit RF signal,

wherein at least one of the receive amplifier, the receive mixer, the transmit mixer and the transmit amplifier includes a resonant unit, the resonant unit being controlled by only the VDT signal or by both the VDT signal and the VAT signal,

wherein the resonant unit is any one of a first LC tank including an inductor controlled by the VDT signal and a capacitor controlled by the VAT signal; a second LC tank including a capacitor controlled by only the VDT signal or including a capacitor controlled by both the VDT signal and the VAT signal; a third LC tank including an inductor and a capacitor controlled by only the VDT signal or including an inductor and a capacitor controlled by both the VDT signal and the VAT signal; and a fourth LC tank including an inductor controlled by the VDT signal and an inductor controlled by the VAT signal.

2. (canceled).

3. **(currently amended)** An RF front-end receiver comprising:

a frequency synthesizer or a base band processor for providing a digital frequency control voltage (VDT) signal and an analog frequency control voltage (VAT) signal [[:]], wherein the frequency synthesizer comprises an oscillator for outputting a resonant frequency signal such that a frequency of the resonant frequency signal is controlled by the VDT signal and the VAT signal;

a receive amplifier for amplifying and outputting a receive RF signal; and

a receive mixer for mixing the receive RF signal amplified and the resonant frequency signal to convert the receive RF signal into a receive base band signal;

wherein at least one of the receive amplifier and the receive mixer includes a resonant unit, the resonant unit being controlled by only the VDT signal or by both the VDT signal and the VAT signal,

wherein the resonant unit is any one of a first LC tank including an inductor controlled by the VDT signal and a capacitor controlled by the VAT signal; a second LC tank including a capacitor controlled by only the VDT signal or including a capacitor controlled by both the VDT signal and the VAT signal; a third LC tank including an inductor and a capacitor controlled by only the VDT signal or including an inductor and a capacitor controlled by both the VDT signal and the VAT signal; and a fourth LC tank including an inductor controlled by the VDT signal and an inductor controlled by the VAT signal.

4-7. (canceled).

8. **(currently amended)** An RF front-end transmitter comprising:

a frequency synthesizer or a base band processor for providing a digital frequency control voltage (VDT) signal and an analog frequency control voltage (VAT) signal [[:]] , wherein the frequency synthesizer comprises an oscillator for outputting a resonant frequency signal such that a frequency of the resonant frequency signal is controlled by the VDT signal and the VAT signal;

a transmit mixer for mixing a transmit base band signal and the resonant frequency signal to convert the transmit base band signal into a transmit RF signal; and a transmit amplifier for amplifying and outputting the transmit RF signal, wherein at least one of the transmit mixer and the transmit amplifier includes a resonant unit, the resonant unit being controlled by only the VDT signal or by both the VDT signal and the VAT signal,

wherein the resonant unit is any one of a first LC tank including an inductor controlled by the VDT signal and a capacitor controlled by the VAT signal; a second LC tank including a capacitor controlled by only the VDT signal or including a capacitor controlled by both the VDT signal and the VAT signal; a third LC tank including an inductor and a capacitor controlled by only the VDT signal or including an inductor and a capacitor controlled by both the VDT signal and the VAT signal; and a fourth LC tank including an inductor controlled by the VDT signal and an inductor controlled by the VAT signal.

9-21. (canceled)

22. (previously presented) The RF front-end transceiver of claim 1, wherein each of the receive amplifier, the receive mixer, the transmit mixer and the transmit amplifier includes the resonant unit.

23. (canceled)

24. (previously presented) The RF front-end receiver of claim 3, each of the receive amplifier and the receive mixer includes the resonant unit.

25. (canceled)

26. (previously presented) The RF front-end transmitter of claim 8, wherein each of the transmit mixer and the transmit amplifier includes the resonant unit.